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ABSTRACT

A study surveyed 139 individuals to determine if differences in the way they approached the physical attributes of various learning environments could be attributed to either gender or age. Participants were Montana State University graduate students in education; adult basic education students in Bozeman, Montana; adult basic education faculty and students in Ayer, Massachusetts; graduate students in adult and technological education in Knoxville, Tennessee; staff of a community college from California; and 100 randomly selected individuals in Washington, D.C. In all, 136 usable surveys were returned. Participants completed up to four instruments in three administrations. Instruments used were the Physical Environment Survey (PES), Oddi Continuing Learning Inventory (OCLI), and Environmental Response Inventory (ERI). Mean adaptive response scores were calculated for males and females. Respondents were divided into four age groupings: those born before 1940, those born between 1940 and 1949, those born between 1950 and 1959, and those born after 1960. Mean adaptive response scores were calculated for each age group. T tests showed no significant difference between genders or among the four age groups on the PES. Analysis of the scores on the OCLI and the PES for the graduate students showed no correlation. Variability was found in the responses of individuals on the PES. Neither variable was significant in determining if an individual was primarily adaptive or adoptive in dealing with the physical environment. (The PES is appended.) (YLB)

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Approaches to changing the physical attributes of the adult learning environment

A preliminary investigation

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A preliminary report to the study participants:

Approaches to changing the physical attributes of the adult learning environment

This study surveyed 139 participants across the United States to determine if differences in the way they approached the physical attributes of various learning environments could be attributed to either gender or age. Neither variable was found to be significant in determining if an individual was primarily adaptive or adoptive in dealing with the physical environment. Since this was an exploratory study in an area that has been researched very little, questions for further studies are more often offered than answers to any specific question.

Assumptions of this study

It was assumed that accurate information can be obtained using mailed surveys that ask respondents to report what behavior they would engage in given a specific situation. This self-reported anticipated behavior is in contrast to direct observation of actual behavior.

It was assumed that since random sampling of the adult population is nearly impossible, representative sampling would yield acceptable data.

Definitions

For this study, learning environment was defined as any situation in which an individual was attempting to receive new information, give information to another, or interact with others in order to gain information, knowledge or skills.

Approaches to the physical environment were defined as either adoptive or adaptive. Adoptive responses consisted of choosing either no change or relying on another to initiate change. Adaptive responses consisted of actively initiating some change on your own. Adoptive responses involved changing your needs to accept the physical condition; adaptive involved changing the physical condition to meet your needs.

In this study, physical was defined as lighting, temperature, safety/comfort, smell, position, visual acuity, and noise factors.

The participants

Five geographic locations were selected in an attempt to have a representative sample. Individuals from throughout the state of Montana, from Ayer, Massachusetts, from Knoxville, Tennessee, from Fullerton, California, and from Washington, D.C. participated. In Montana, two different groups were surveyed. First, graduate students in education at Montana State University were asked to participate in several classes during the summer of 1988. In the city of Bozeman, Montana, Adult Basic Education students were asked to participate in the Fall of 1988. Faculty and students in Adult Basic Education classes offered by a community college in Ayer, Massachusetts participated. In Knoxville, again graduate students in adult and technological education were surveyed. Staff of a community college from California participated in this study. Using the local phone directory, 100 individuals in Washington, D.C. were randomly mailed the survey and asked to participate. In addition, participants in the Army Continuing Education System in the Washington metropolitan area participated.

The sample

In all, 139 individuals participated. Three surveys could not be used since the individuals did not complete the entire survey. Of the 136 participants, 78 were females and 58 males. The majority, slightly over 2/3s, were graduate students. Birth years ranged from 1911 to 1970 with the majority of individuals born in the 1940s and 1950s.

The surveys

Several surveys were used for various purposes in this study. The Physical Environment Survey was developed for this study. It consists of 14 scenes each presenting the individual with a particular physical setting in which some type of learning activity is being conducted. In each scene one physical attribute is noticeably interfering with the activity. The respondent is asked to select from 4 responses (2 adoptive and 2 adaptive) the one which best describes what he/she would do. This survey was used to establish a response score which was the number of adaptive answers selected out of 14 possible.

Those participants enrolled in graduate studies were also asked to complete the Oddi Continuing Learning Inventory. This instrument purports to measure how self-directed the individual is in learning. Recent studies have led to questions about the use of this instrument with groups other than those used to develop the inventory. Thus, its use was restricted to graduate students only in this study. Ninety-four individuals completed this instrument

The Environmental Response Inventory was sent to all participants to determine a measure of how each participant

responds to the factors in the total physical environment. Of particular interest to this study was the Environmental Adaptation score derived from this inventory. Seventy-eight individuals completed this instrument.

A duplicate copy of the Physical Environment Survey was used thirty days after the first survey was completed. Seventy-two participants completed the second Physical Environment Survey. The results from the second administration of the Physical Environment Survey were compared to the results of the first to see how valid the survey was.

Reliability and Validity of the Physical Environment Survey

The Physical Environment Survey developed by the researcher was used since no standardized instruments were available that attempted to measure approaches to changing the physical environment in learning settings. Reliability was measured both by dividing the first 14 item survey into two 7 item surveys and comparing results. When the response to the odd numbered scenes were compared to the even, 72% of the respondents showed the same approach on each half of the survey. When the first seven scenes were compared to the last seven, 78% showed the same approach. When a comparison was made between the first and second survey responses for the 72 participants who completed the Physical Environment Study twice, 39% had identical total adaptive/adoptive scores on each survey; another 40% had total scores differing by only one. It appears that although not as high as perhaps one may want, the Physical Environment Survey does measure approaches reliably, i.e., the results are the same each time the survey is used.

Validity, does the survey measure the concepts it says it does, is a concern in this study. Validity was measured by comparing the Physical Environment Survey results with the Environmental Adaptation scale of the Environmental Response Inventory. The rationale was that the Environmental Response Inventory measured response to the total environment; the Physical Environment Survey measured response to one part of the total- learning environments. It was hypothesized that individuals would respond to the total as they do to a particular. However, comparing the results gave no correlation. Those who scored high on the Physical Environment Survey in adaptive responses did not necessarily score high on the Adaptation score of the Environmental Response Inventory.

While this does not mean that the Physical Environment Survey has no validity, it does require that the validity be questioned. Any further use of the survey would require detailed validation studies. For this study, the results must be interpreted with caution since the only established validity is that the survey appears to ask questions that deal with the physical environment. This type of validity is the weakest and limits the study. Another concern with the measurement of the validity of the Physical Environment Survey comes from the fact that only 57% of the participants completed the two necessary instruments. Perhaps, if more had done so, validity may have been

better established.

Methodology

This study consisted of participants voluntarily completing up to four instruments in three administrations. Participants enrolled in graduate classes were given the Physical Environment Survey and Oddi Continuing Learning Inventory during a class session and either allowed to complete it in class or asked to do so on their own. Surveys were also given to adult basic education students during classes. Initial surveys were mailed to participants in Washington, D.C. Postage-paid return envelopes were provided and participants were never asked to put any identifying information such as name. Only birth year and gender were used. With this first survey, participants were given a form to indicate their willingness to continue participating by completing additional surveys or inventories. If a person did not indicate a willingness to do so, no further contact was made. Those participants willing to continue participating were immediately mailed the Environmental Response Inventory, postage-paid return envelope, and personalized cover letter. Thirty days after the receipt of the completed Physical Environment Survey, a second copy with a personalized letter and postage-paid return envelope were sent.

In March of 1989, all participants were mailed a letter asking that they complete any surveys or inventories that they had not yet returned. They were given the opportunity to let the researcher know with a postage-paid reply if they had not received one of the items or needed another copy. This was done to increase the number of individuals who would complete all parts of the study.

Responses to the 14 scenes of the Physical Environment Survey were entered into a DBase computer file along with birth year and gender. Oddi Continuing Learning Inventory scores for graduate students were also entered as well as Environmental Response Inventory Adaptation scores. Total scores for adaptive and adoptive responses based on the Physical Environment Survey were also entered.

Findings

Mean adaptive response scores were calculated for males and females. A t test showed that there was no significant difference between genders on the Physical Environment Survey. The 136 respondents were divided into four age groupings: those born before 1940, those born between 1940 and 1949, those born between 1950 and 1959, and those born after 1960. Mean adaptive response scores were calculated for each age group. Again t tests for significance of difference found no significant difference among the four groups.

Analysis of the scores on the Oddi Continuing Learning Inventory and the Physical Environment Survey for the graduate

students in the study showed no correlation. Again, a high score on the survey was in no way related to a high score on the inventory. Nor did a low score on the Oddi Continuing Learning Inventory indicate a low score on the Physical Environment Survey adaptive scale. Based on some studies of self-direction in learning, it was hypothesized that learners who were self-directed, that is, took control in learning situations would tend to be more adaptive than adoptive. However, the results of this study do not confirm any such relationship.

This study did find variability in the responses of individuals on the Physical Environment Survey. The mean score of all participants was 9 adaptive responses and 5 adoptive responses. However, scores ranged from as few as 0 adaptive responses to as many as 13.

Conclusions

Any conclusions drawn from this study must be understood in light of the weak validity of the Physical Environment Survey and the representativeness of the sample. None-the-less, it appears that individuals do approach changing the physical attributes of their learning environments differently. The approach of individuals in this study was not exclusively adaptive or adoptive but rather a continuum with both approaches utilized by the same individual in differing settings. Based on this study, this difference can not be attributed to either gender nor age. When a person is facilitating adult learning, it can be assumed that individual learners will differ in their approach to changing potentially distracting physical factors such as too much noise, inadequate seating location, or discomfort due to too little or too much heat. However, no assumptions can be made about what approach an individual will employ based on either gender or age.

This was exploratory research lacking much knowledge from previous studies. Further research needs to establish an acceptable format by which to gather information from participants. Either a valid and reliable instrument needs to be developed or the use of interviews or direct observation needs to be considered. The study needs to be replicated on other groups of adults not in this sample and the use of graduate students in such large percentages should be avoided.

The collection of information three times from participants in retrospect was a problem. Less than half of the participants (45.6%) completed information all three times. Thus, the results are limited by the large amount of missing information.

While this study was not as informative or powerful as had been hoped, it does provide some preliminary information on which further research may be based. The apparent elimination of gender and age as significant variables allows future research to investigate other possible causes for the differences between individuals who more often approach the environment adaptively and those who more often use adoptive approaches.

Physical Environment Survey

The purpose of this questionaire is to ask you how you think you would react to some common situations in adult learning. Each scene gives you some information about a particular place where you might be trying to learn. You need simply to choose the response that best describes what you think you would do if you were actually faced with the situation.

There are no right or wrong answers; this is not a test!

PLEASE CIRCLE THE LETTER OF THE **ONE** RESPONSE THAT **BEST** DESCRIBES WHAT YOU WOULD DO IN EACH SCENE (not necessarily what you think should be done)

SCENE # 1:

You are dressed comfortably with a sweater over your shirt for a chilly winter day in your town. When you arrive at the conference center, a gush of hot air encircles you as you enter the building. In the room, after a few minutes you find yourself uncomfortably hot.
What would you do?

A) Nothing, I would just put up with the heat until the presentation was over.

B) I would remove my sweater.

C) I would open a window to get some fresh air circulating.

D) Since I didn't have to be there, I'd leave.

SCENE # 2:

In a movie theater, you are watching a new hit release. In front of you are some people obviously not very interested in the movie. They are constantly talking loud enough so that you can't hear the dialogue on screen. What would you do?

A) I'd get up and move to another seat in the theater.

B) Politely, I'd ask the people to be quiet so I could hear.

C) I'd go ssh! every time they talked, but I'd stay where I was.

D) I'd go out to the manager and ask her to talk to the people.

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Please circle your gender female male

SCENE # 3:

At a meeting, a paper is passed out and everyone is asked to read it prior to a general discussion. It is a cloudy day so not much sunshine is entering through the windows. The flourescent lights overhead have some burned out tubes and a few are flickering off and on. You are finding it hard to read and are reading very slowly since it's hard to see the paper. What would you do?

A) I'd move to a place in the room where the lighting was better.

B) I'd just take my time and read as best I could.

C) I'd skim through the paper and ask the person next to me what he thought about the paper.

D) I'd go down the hall to the restroom and see if the lights were better and read the paper there.

SCENE # 4:

When you enter the room, there are only two seats vacant. One is down front and you would have to crawl over some people to get to it. So, you sit in the seat on the end of the aisle. Next to you is a person who probably didn't shower recently. The odor is noticeable and does bother you. What would you do?

A) I'd get up and move to the other seat.

B) Nothing. I'd sit there and try to put up with it.

C) I would leave the room.

D) I'd sit there but use my note pad as a fan to get some air.

SCENE # 5:

When the instructor starts using an overhead, you can't see from your seat. There are a few other vacant places in the room but no chairs. What would you do?

A) I'd ask the people near me to whisper the overheads to me.

B) I'd move my seat to a vacant spot so I could see.

C) I'd forget the overheads and just listen to the speaker.

D) I'd ask the speaker to try to move the screen.

SCENE # 6:

It's a very warm summer day--the first of the season. When you enter the room, you can tell that the air-conditioning has been working hard--too hard. You are chilly after a while and getting pretty close to cold. What would you do?

A) Nothing. Just grin and bear it until it's time to leave.

B) I'd ask the teacher to turn the air-conditioning off and open some windows.

C) I'd look around and see if someone had a jacket or sweater I could borrow.

D) I'd leave the room every now and then to warm up in the hallway.

SCENE # 7:

You are listening to an interesting speech. In the hallway are some people talking about their plans for the evening rather loudly with a lot of laughing. What would you do?

A) I'd ask the people to talk a little more quietly.

B) I'd shut the door to try to cut down on the noise.

C) I'd move away from the doorway to a place farther from the noise.

D) When I didn't quite catch something the speaker said, I'd ask someone near me to repeat what had been said.

SCENE # 8:

You are completing a lengthy opinion survey. Next to you is a person with a walk-man with the volume so high that you can hear the music even though he has headphones. The music is interfering with your concentration. What would you do?

A) I'd just try to ignore the music and do the best I could.

B) I'd give up on the survey and just fill in answers to get it done.

C) I'd ask the man to turn the volume down so I couldn't hear.

D) I'd move to another location so I couldn't hear.

Please give your date of birth Month _____ Day _____ Year___

SCENE # 9:

In the corner of the room is a trashcan that hasn't been emptied in a while. Sitting near the trashcan, you can smell bananna peels and other food waste that are starting to rot. The smell is strong enough to be noticeable. What would you do?

A) I'd get up and move the trash can out into the hall.

B) Nothing since I'd get used to the smell shortly.

C) I'd quietly move to another seat farther away.

D) I'd ask someone in charge to have the can emptied.

SCENE # 10:

There is a glare from the window so much so that you can't see the board. What would you do?

A) I'd get up and find another seat where the glare was eliminated.

B) I'd lower the window shade to cut out the glare.

C) I'd ask the person next to me what was on the board.

D) Squint and read as best I could.

SCENE # 11:

While trying to hear a presentation, the person next to you is constantly asking questions about what is being said by the presentor. You can't keep up with the speaker because you are trying to explain what has already been said. What would you do?

A) Try to ignore the person questioning you hoping the questions will stop.

B) Tell the person you'll be happy to talk after the presentation.

C) Answer the person quickly with curt answers.

D) Raise your hand and ask the speaker the same question you were just asked by the person.

SCENE # 12:

In a class, the teacher uses a lot of overhead screens. She simply copies charts from a textbook not used in the class and projects them on the overhead. You have a hard time reading the charts and following the examples. What would you do?

A) Ask the teacher to make copies of each chart to hand out.

B) Try to sit as close as possible to the screen, squint and read as best you can.

C) Give up trying to read the charts and just follow as best you can.

D) Ask the teacher what text the charts are coming from and get yourself a copy of that book.

SCENE # 13:

After a talk begins, you realize that you want to take lots of notes. Your chair has no writing surface attached. In the back of the room you had noticed some tables and chairs but they were stacked as if not to be used for this talk. What would you do?

A) Try to write on my lap.

B) I'd move to the back of the room and use a table and chair.

C) I'd try to jot down quick, short notes; then after the talk try to fill in.

D) Ask the speaker if a copy of the speech would be available.

SCENE # 14:

Shortly after you sit down, you notice that one of the chair legs is very loose and wobbly. Each time you shift position, the chair creaks and shakes. What would you do?

A) Get up and see if you can screw the leg back in tighter.

B) Sit very quietly and still until the meeting was over.

C) Go out to another room and find a chair that isn't broken and bring it in to use.

D) Get up quietly, walk to the back of the room and participate in the meeting standing up.